

**Attachment**  
**File No. 0034-EX-CN-2016**

**1. Name, address, phone number (also email address and facsimile number, if available) of the applicant.**

SES Americom, Inc.  
Attn: Petra A. Vorwig  
4 Research Way  
Princeton, NJ 08540  
Phone: 202-478-7143  
Mobile: 202-380-6323  
email: petra.vorwig@ses.com

**2. Description of why an experimental license is needed.**

SES is developing a vehicle-based platform that will support antennas capable of communicating with SES's conventional Ku-band spectrum satellites located in geostationary orbit and Ka-band spectrum satellites operated in non-geostationary orbit by O3b Limited. The vehicle will be at a complete stop (vs. communications on the move) when communicating with the satellite(s). SES is seeking experimental authority to demonstrate and assess the use of these antennas to support various applications including Intelligence, Surveillance and Reconnaissance technologies and other applications designed to support US Government and non-governmental organizations.

**3. Description of the operation to be conducted and its purpose.**

SES seeks experimental authority to test the antennas identified below and to evaluate their capabilities to support US Government requirements from fixed locations throughout the continental United States. The demonstrations will enable SES and its customers to evaluate the performance characteristics of the earth stations and associated applications.

**4. Time and dates of proposed operation.**

SES requests a blanket experimental license for two years, from September 6, 2016 to September 5, 2018. SES will notify O3b, ViaSat Inc., EchoStar Corporation/Hughes, Inmarsat and any other US authorized Ka-band satellite operators at least seven days prior to any transmission, and provide emergency contact information. In the event any party experience harmful interference, SES will immediately cease transmissions.

**5. Class(es) of station (fixed, mobile, fixed and mobile) and call sign of station (if applicable).**

The transmitting antennas will operate in fixed mode.

**6. Description of the location(s) and , if applicable, geographical coordinates of the proposed operation.**

**Attachment**  
**File No. 0034-EX-CN-2016**

SES requests authority to operate in the contiguous United States. SES will notify the FCC of the geographical coordinates of the demonstration site at least seven days prior to testing. In addition, when the earth stations will transmit in spectrum bands shared with terrestrial operators, SES will complete frequency coordination prior to testing.

**7. Transmit equipment to be used, including name of manufacturer, model and number of units.**

Manufacturer	Frequency	Size	Model	Number of Units
AvL Technologies	Ku-band	1.6 meter	1660/1220 PIB FA	10
AvL Technologies	Ka-band	1.0 meter	1080	10
AvL Technologies	Ka and Ku-band (dual band)	1.0 meter	1010	10

8. Frequencies

Transmit:

27.6 - 28.4 GHz  
28.6 - 29.1 GHz  
14.0 - 14.50 GHz

Receive:

17.8 - 18.6 GHz  
18.8 - 19.3 GHz  
11.7 - 12.75 GHz

Action	Frequency	Station Class	Output Power/EIRP	Mean Peak	Frequency Tolerance (+/-)	Emission Designator	Modulating Signal
1.0m Ka-band	27.60-28.40 GHz	FX	40.0 W/ 60.2 dbW	P	0.00030%	216MG7D	180 Msps
1.0m Ka-band	28.60-29.10 GHz	FX	40.0 W/ 60.2 dbW	P	0.00030%	216MG7D	180 Msps
1.0m Ku-band	14.0-14.50	FX	40.0W/ 57.5 dbW	P	1 x 10 <sup>-11</sup>	36MG7D	15 Msps

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**File No. 0034-EX-CN-2016**

1.6m Ku- band	14.0-14.5 GHz	FX	40.0 W/ 61.3 dBW	P	$1 \times 10^{-11}$	36MG7D	15 Msps
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For all operations, SES will comply with the radiofrequency radiation exposure limits in 47 C.F.R. 1.1310 and apply the measures recommended in the FCC's OET Bulletin 65 to ensure compliance.

9. Emission Designator

Ka-band Operations - 1M00G7D to 216MG7D

Ku-band Operations - 2M50G7D to 36MG7D

10. Associated Maximum EIRP/Maximum Effective Radiated Power

AVL 1.0m (Ka-band Only)	60.2 dBW/638.7 kW
AVL 1.0m (Ku-band)	57.5 dBW/342.8 kW
AVL 1.6m (Ku-band)	61.3 dBW/834.7 kW

11. Overall height of antenna above the ground (if greater than six meters above the ground or an existing structure, see part 17 of this Chapter concerning notification to the FAA).

The overall height of the antennas above ground level and above existing structures will not exceed six meters.

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Exhibit 1: Directional Antenna Information

	<b>AvL 1.6m</b>	<b>AvL 1.0m (Ku-band)</b>	<b>AvL 1.0m (Ka-band)</b>
Is a directional antenna (other than radar) used?	Yes	Yes	Yes
Width of the beam in degrees at the half power point	Beamwidth (-3dB) 0.9° at Transmit	Beamwidth (-3dB) 1.5° at Transmit	Beamwidth (-3dB) 0.7° at Transmit
Orientation in horizontal plane (degrees)	GEO Azimuth sweep is 400° (+/- 200°)	GEO Azimuth sweep is 400° (+/- 200°)	Azimuth sweep range for NGSO antenna is 230° to 130°
Orientation in vertical plane (degrees)	GEO Elevation is 0° up to 90° of reflector boresight	GEO Elevation is 0° up to 90° of reflector boresight	Elevation will vary from 15° up to 33° across the pass